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DOCKET NO: M0925.70094US01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Timothy M. Swager et al.  
Serial No.: Not yet assigned  
Confirmation No.: Not yet assigned  
Filed: Herewith  
For: POLYMERS WITH HIGH INTERNAL FREE VOLUME  
Examiner: Not yet assigned  
Art Unit: Not yet assigned

Mail Stop Patent Application  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**STATEMENT FILED PURSUANT TO THE DUTY OF  
DISCLOSURE UNDER 37 CFR §§1.56, 1.97 AND 1.98**

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, the Applicant requests consideration of this Information Disclosure Statement.

**PART I: Compliance with 37 C.F.R. §1.97**

This Information Disclosure Statement has been filed within three months of the filing date of a National Application other than a continued prosecution application under 37 C.F.R. §1.53(d) and before the mailing date of a first Office Action on the merits in the above-identified case.

No fee or certification is required.

**PART II: Information Cited**

The Applicant hereby makes of record in the above-identified application the information listed on the attached form PTO-1449 (modified). The order of presentation of the references should not be construed as an indication of the importance of the references.

The Applicant hereby makes the following additional information of record in the above-identified application.

764547

Serial No.: Not yet assigned  
Conf. No.: Not yet assigned

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Art Unit: Not yet assigned

The following co-pending applications that may contain subject matter related to this application are enclosed unless the earlier application is identified herein and is relied upon for an earlier filing date under 35 U.S.C. §120, and the copy was provided in the earlier application:

<u>Serial No.</u>	<u>Filing Date</u>	<u>Inventor(s)</u>	<u>Atty Docket No.</u>
09/305,379	May 5, 1999	T.M. Swager et al.	M0925.70062US00
09/935,060	August 21, 2001	T.M. Swager et al.	M0925.70094US00

PART III: Explanation of Non-English Language References and Remarks Concerning Other Information Cited

The following is a concise explanation of the relevance of each non-English language reference listed on the attached form PTO-1449 (modified):

DE 198 06 037 generally relates to triptycene polymers and copolymers.

DE 197 44 792 generally relates to triptycene derivatives and their use for optoelectronic applications, in particular as electroluminescent materials.

An English-language translation of Japanese application no. 05-113286, filed May 14, 1993, is enclosed.

PART IV: Remarks

Documents cited anywhere in the Information Disclosure Statement are enclosed unless otherwise indicated. It is respectfully requested that:

1. The Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims;
2. The enclosed form PTO-1449 be signed by the Examiner to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application;
3. The citations for the information be printed on any patent which issues from this application.

Serial No.: Not yet assigned  
Conf. No.: Not yet assigned

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Art Unit: Not yet assigned

By submitting this Information Disclosure Statement, the Applicant makes no representation that a search has been performed, of the extent of any search performed, or that more relevant information does not exist.

By submitting this Information Disclosure Statement, the Applicant makes no representation that the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b).

By submitting this Information Disclosure Statement, the Applicant makes no representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

Notwithstanding any statements by the Applicant, the Examiner is urged to form his own conclusion regarding the relevance of the cited information.

An early and favorable action is hereby requested.

Respectfully submitted,  
*Timothy M. Swager et al., Applicants*

By: 

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Docket No. M0925.70094US01  
Date: January 26, 2004  
**XNDDX**

<b>FORM PTO-1449/A and B (Modified)</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				APPLICATION NO.: Not yet assigned		ATTY. DOCKET NO.: M0925.70094US01	
				FILING DATE: Herewith		CONFIRMATION NO.: Not yet assigned	
				APPLICANT: Timothy M. Swager et al.			
				GROUP ART UNIT: Not yet assigned		EXAMINER: Not yet assigned	
Sheet	1	of	3				

**U.S. PATENT DOCUMENTS**

Examiner's Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication or of issue of Cited Document MM-DD-YYYY
		Number	Kind Code		
	A1	*4,356,429	A	Tang	10-26-1982
	A2	*4,687,732	A	Ward et al.	08-18-1987
	A3	*4,927,768	A	Coughlin et al.	05-22-1990
	A4	*4,946,890	A	Meador	08-07-1990
	A5	*4,992,302	A	Lindmayer	02-12-1991
	A6	*5,155,149	A	Atwater et al.	10-13-1992
	A7	*5,194,393	A	Hugl et al.	03-16-1993
	A8	*5,236,808	A	Smothers	08-17-1993
	A9	*5,244,813	A	Walt et al.	09-14-1993
	A10	*5,254,633	A	Han et al.	10-19-1993
	A11	*5,364,797	A	Olson et al.	11-15-1994
	A12	*5,414,069	A	Cumming et al.	05-09-1995
	A13	*5,451,683	A	Barrett et al.	09-19-1995
	A14	*5,511,547	A	Markle et al.	04-30-1996
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	A21	*5,563,056	A	Swan et al.	10-08-1996
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	A28	*5,679,773	A	Holmes	10-21-1997
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	A31	*5,709,994	A	Pease et al.	01-20-1998
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	A33	*5,723,218	A	Haugland et al.	03-03-1998
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	A36	*6,259,277	B1	Tour et al.	07-10-2001

FOREIGN PATENT DOCUMENTS

Examiner's Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document (not necessary)	Date of Publication of Cited Document MM-DD-YYYY	Translation (Y/N)
		Office/ Country	Number	Kind Code			
	B1	*DE	197 44 792	A1	Hoechst AG	04-15-1999	N
	B2	*DE	198 06 037	A1	Aventis Research & Technologies GmbH	08-18-1999	N
	B3	*EP	0 442 123	A1	Neste Oy	08-21-1991	
	B4	*EP	1 011 154	A1	Sony International (Europe) GmbH	06-21-2000	
	B5	*JP	05-113286		Yamamoto	11-22-1994	
	B6	*WO	89/00593	A1	Memtec Limited	01-26-1989	
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	B8	*WO	99/57222	A1	Massachusetts Institute of Technology	11-11-1999	
	B9	*WO	02/16463	A2	Massachusetts Institute of Technology	02-28-2002	

OTHER ART — NON PATENT LITERATURE DOCUMENTS

Examiner's Initials	Cite No	Include name of the author (in CAPITAL LETTERS) title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, relevant page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)
	C1	*CHEN L. et al., "Tuning the properties of conjugated polyelectrolytes through surfactant complexation," <i>J. Am. Chem. Soc.</i> , vol. 122, no. 38, pp. 9302-9303, 2000	
	C2	*CHEN L. et al., "Highly sensitive biological and chemical sensors based on reversible fluorescence quenching in a conjugated polymer," <i>PNAS</i> , vol. 96, no. 22, pp. 12287-12292, 1999	
	C3	*FU D.-K. et al., "Alternating poly(pyridyvinylphenylenevinylene)s: Synthesis and solid state organizations," <i>Tetrahedron</i> , vol. 53, no. 45, pp. 15487-15494, 1997	
	C4	*GAYLORD B.S. et al., "Water-soluble conjugated oligomers: Effect of chain length and aggregation on photoluminescence-quenching efficiencies," <i>J. Am. Chem. Soc.</i> , vol. 123, no. 26, pp. 6417-6418, 2001	
	C5	*GAYLORD et al., "DNA detection using water-soluble conjugated polymers and peptide nucleic acid probes," <i>Proc Natl Acad Sci USA</i> , August 20, 2002, Vol. 99, No. 17, pp. 10954-10957	
	C6	*HALKYARD C.E. et al., "Evidence of aggregate formation for 2,5-dialkylpoly( <i>p</i> -phenyleneethynylene)s in solution and thin films," <i>Macromolecules</i> , vol. 31, no. 25, pp. 8655-8659, 1998	
	C7	*HARRISON B.S. et al., "Amplified fluorescence quenching in a poly( <i>p</i> -phenylene)-based cationic polyelectrolyte," <i>J. Am. Chem. Soc.</i> , vol. 122, no. 35, pp. 8561-8562, 2000	
	C8	*HEEGER P.S. & Heeger, A.J. "Making sense of polymer-based biosensors," <i>Proc. Natl Acad Sci USA</i> , vol. 96, no. 22, pp. 12219-12221, 1999	
	C9	*HÖGER S. et al., "Synthesis, aggregation, and adsorption phenomena of shape-persistent macrocycles with extraannular polyalkyl substituents," <i>J. Am. Chem. Soc.</i> , vol. 123, no. 24, pp. 5651-5659, 2001	
	C10	*JONES R.M. et al., "Superquenching and its applications in $\pi$ -aggregated cyanine polymers," <i>Langmuir</i> , vol. 17, no. 9, pp. 2568-2571, 2001	
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	C12	*KIM et al., "Ultrafast Energy-Transfer Dynamics between Block Copolymer and $\pi$ -Conjugated Polymer Chains in Blended Polymeric Systems," <i>Chemistry of Materials</i> , Vol. 13(8), pp. 266-2674	
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	C14	*KUSHON et al., "Detection of DNA Hybridization via Fluorescent Polymer Superquenching," <i>Langmuir - The ACS Journal of Surfaces and Colloids</i> , October 1, 2002, Volume 18, Number 20	
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	C17	*LUO L. & Eisenberg, A. "Thermodynamic stabilization mechanism of block copolymer vesicles," <i>J. Am. Chem. Soc.</i> , vol. 123, no. 5, pp. 1012-1013, 2001	
	C18	*MIAO et al., "Fluorescence sensory polymers containing rigid non-planar aromatic scaffolds", Papers presented at the Meeting-American Chemical Society, Division of Polymer Chemistry, <i>J. Am. Chem. Soc.</i> , vol. 39, no. 2, pp. 1081-1082, August 1998	

Examiner's Initials	Cite No	Include name of the author (in CAPITAL LETTERS) title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, relevant page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)
	C19	*MOIA, F. et al., "Optical LLP/LCP Devices: A New Generation of Optical Security Elements," <i>Optical Security and Counterfeit Deterrence Techniques III</i> , SPIE Vol. 3973 (2000), pp. 196-203.	
	C20	*NORVEZ, S. et al., "Epitaxygens: Mesophases Based on the Triptycene Molecular Subunit," <i>J. Chem. Soc., Chem. Commun.</i> , 1990, pp. 1398-1399.	
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	C22	*NORVEZ, S. et al., "Liquid Crystalline Triptycene Derivatives," <i>J. Org. Chem.</i> , 1993, Vol. 58, No. 9, pp. 2414-2418.	
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	C24	*PLACE I. et al., "Stabilization of the aggregation of cyanine dyes at the molecular and nanoscopic level," <i>Langmuir</i> , vol. 16, no. 23, pp. 9042-9048, 2000	
	C25	*PSCHIRER N.G. & Bunz, U.H.F. "Poly(fluorenyleneethynylene)s by alkyne metathesis: Optical properties and aggregation behavior," <i>Macromolecules</i> , vol. 33, no. 11, pp. 3961-3963, 2000	
	C26	*SNOW A.W. et al., "Synthesis and evaluation of hexafluorodimethylcarbinol functionalized polymers as microsensor coatings," <i>J. App. Poly. Sci.</i> , vol. 43, pp. 1659-1671, 1991	
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	C28	*SWAGER, T. M. "The molecular wire approach to sensory signal amplification," <i>Acc. Chem. Res.</i> , vol. 31, no. 5, pp. 201-207, 1998	
	C29	*TAN et al., "Photophysics, aggregation and amplified quenching of a wter-soluble poly(phenylene ethynylene)," <i>Chem. Commun.</i> , 2002, pp. 446-447	
	C30	*VAN HOUTEN K.A. et al., "Rapid luminescent detection of phosphate esters in solution and the gas phase using (dppe)Pt(S <sub>2</sub> C <sub>2</sub> (2-pyridyl)(CH <sub>2</sub> CH <sub>2</sub> OH))," <i>J. Am. Chem. Soc.</i> , vol. 120, no. 47, pp. 12359-12360, 1998	
	C31	*WALTERS et al., "Photophysical Consequences of Conformation and Aggregation in Dilute Solutions of $\pi$ -Conjugated Oligomers," <i>Langmuir</i> , 1999, Vol. 15, pp. 5676-5680	
	C32	*WEDER C. & M. S. Wrighton, "Efficient solid-state photoluminescence in new poly(2,5-dialkoxy- <i>p</i> -phenyleneethynylene)s," <i>Macromolecules</i> , vol. 29, no. 15, pp. 5157-5165, 1996	
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	C34	*YANG, Jye-Shane et al., "Fluorescent porous polymer films as TNT chemosensors: electronic and structural effects," <i>J. Am. Chem. Soc.</i> , vol. 120, no. 46, 1998, pp. 11864-11873.	
	C35	*YANG, Jye-Shane et al., "Anomalous crystal packing of iptycene secondary diamides leading to novel chain and channel networks," <i>Tetrahedron Letters</i> , vol. 41, no. 41, October 7, 2000, pp. 7911-7915.	
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	C38	*ZHOU Q.& T.M. Swager, "Fluorescent chemosensors based on energy migration in conjugated polymers: The molecular wire approach to increased sensitivity," <i>J. Am. Chem. Soc.</i> , vol. 117, no. 50, pp. 12593-12602, 1995	

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EXAMINER	DATE CONSIDERED
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#EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

\*a copy of this reference is not provided as it was previously cited by or submitted to the office in a prior application, Serial No. 09/935,060, filed August 21, 2001, and relied upon for an earlier filing date under 35 U.S.C. 120 (continuation, continuation-in-part, and divisional applications).